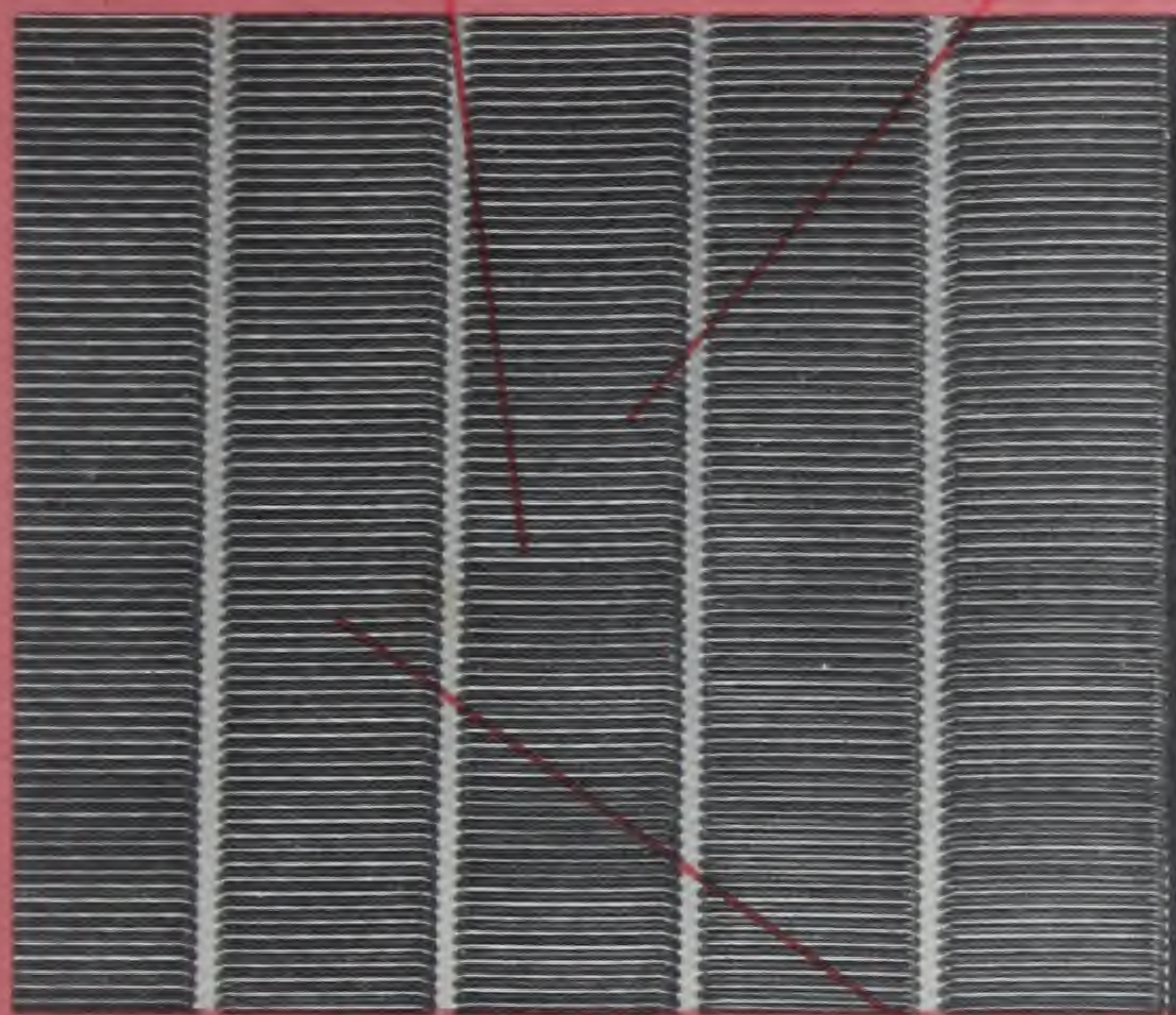


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## ***Kaiser Aluminum*** **Shade Screening**

*a new way to keep homes, offices, plants  
refreshingly cool on hot summer days*



DISTRIBUTORS  
TEMPLE SALES COMPANY  
5659 OGONTZ AVE.  
LI 8-0384 PHILA. 41, PA.



# WHEN THE SUN STARTS TO SIZZLE

## HOMES, OFFICES OR PLANTS CAN BE AS MUCH AS

# 15° COOLER!

With the full fury of the summer sun burning down—as home, office and plant temperatures soar through the 90's and on up, your clients want relief from the unbearable heat in every way possible. For years there has been very little you could do about the weather.

But **NOW** you can **BEAT THE HEAT**—help them live and work in enjoyably cooler rooms—with the revolutionary new shading product—

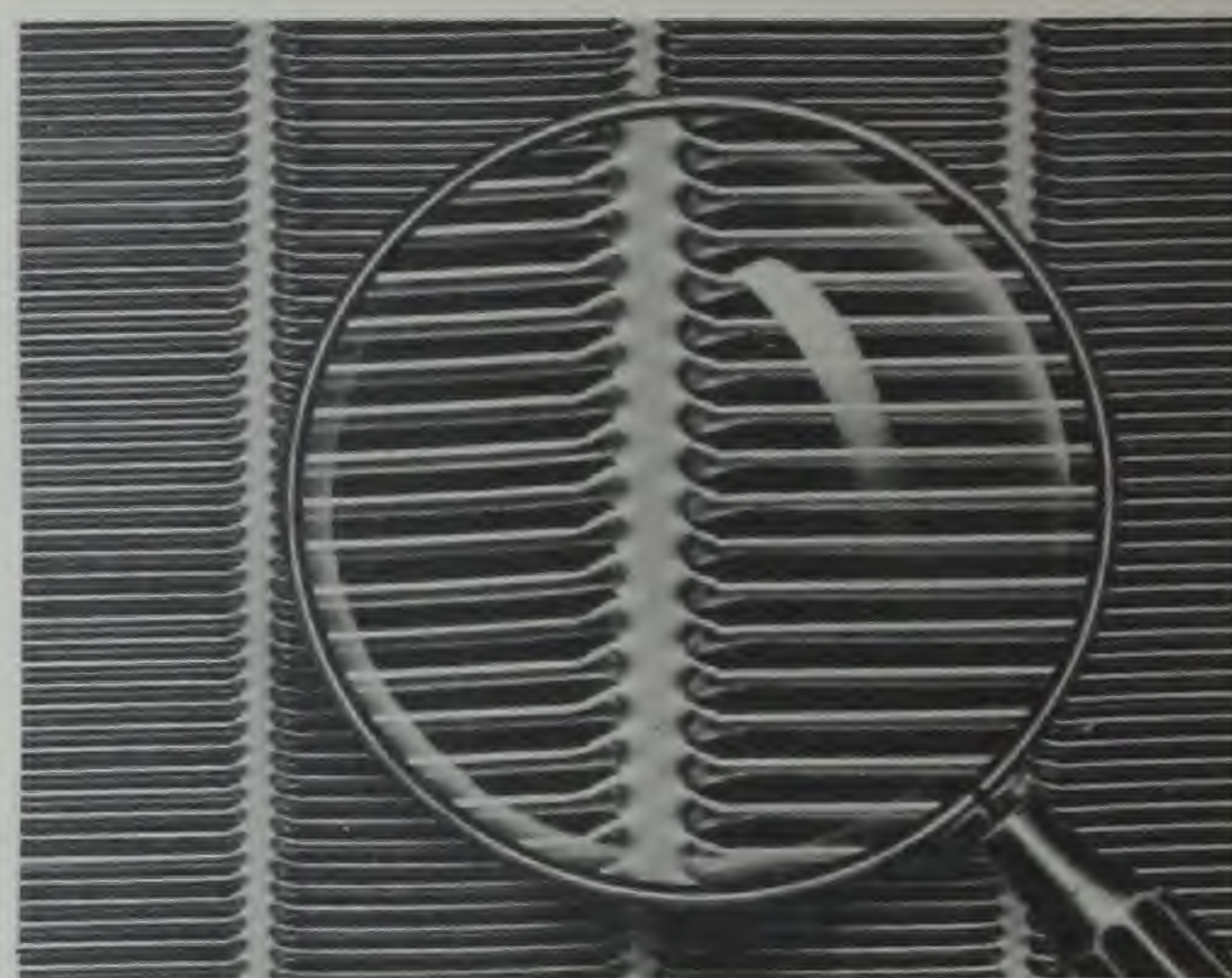
### **Kaiser Aluminum Shade Screening.**

No longer must anyone endure the sweltering discomfort of hot stuffy rooms, squint against glaring light and fight off attacks of flying insects.

### **KAISER ALUMINUM SHADE SCREENING OFFERS ECONOMICAL 3-IN-1 COMFORT!**

This unique new product provides economical 3-in-1 comfort. (1) It keeps room temperatures cooler! (2) It assures glareless light and indoor shade! (3) It gives protection against insects!

This strong lightweight aluminum heat-controlling screen consists of small horizontal louvers permanently tilted at a slight downward angle. This scientific design stops the intense heat rays before they reach the inside of a room. Where a home or building is not air conditioned, *Kaiser Aluminum Shade Screening* will give economical protection against the summer heat. It effects substantial savings in the cost of air conditioning equipment already installed and permits savings in size of new units.



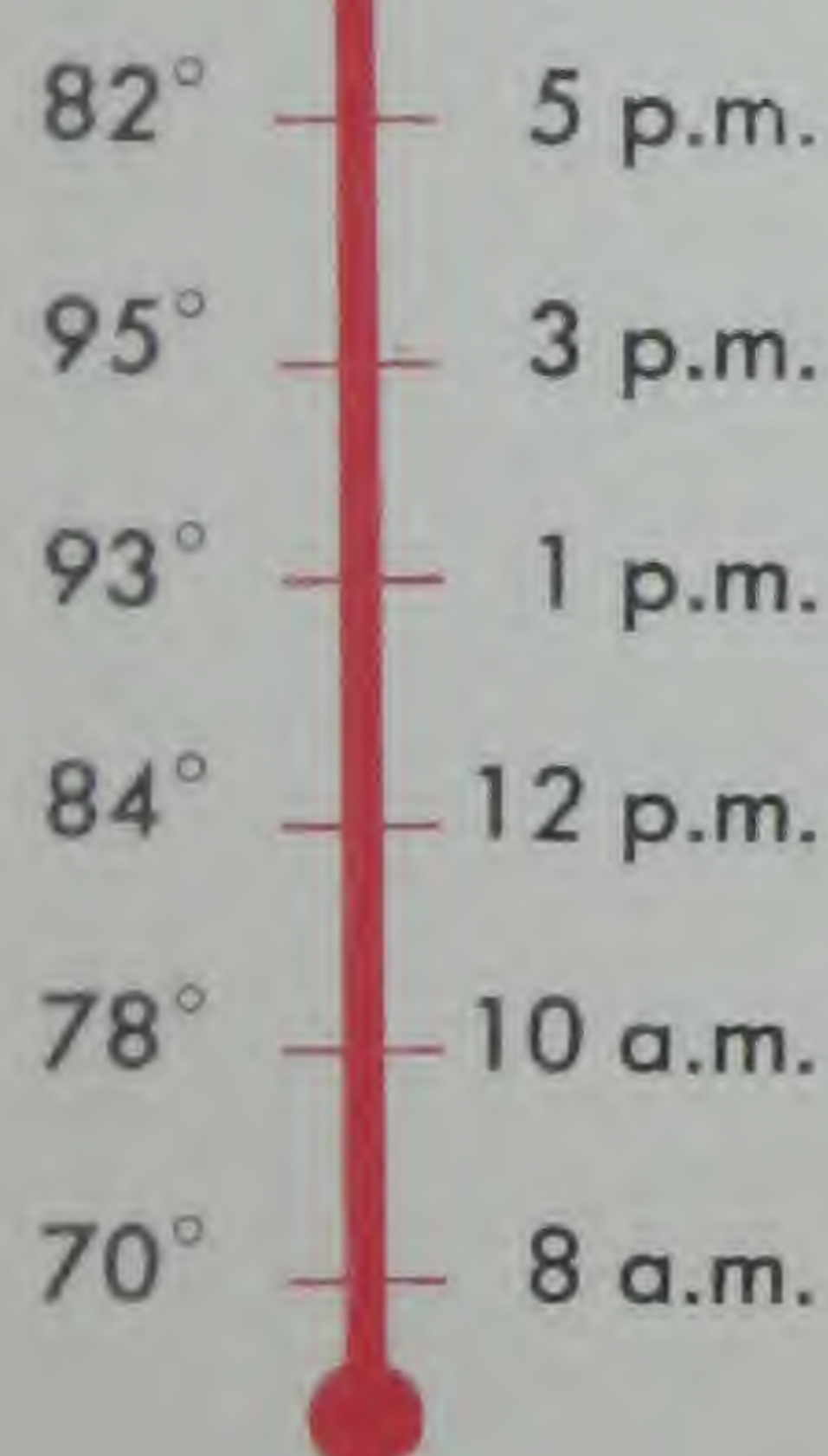
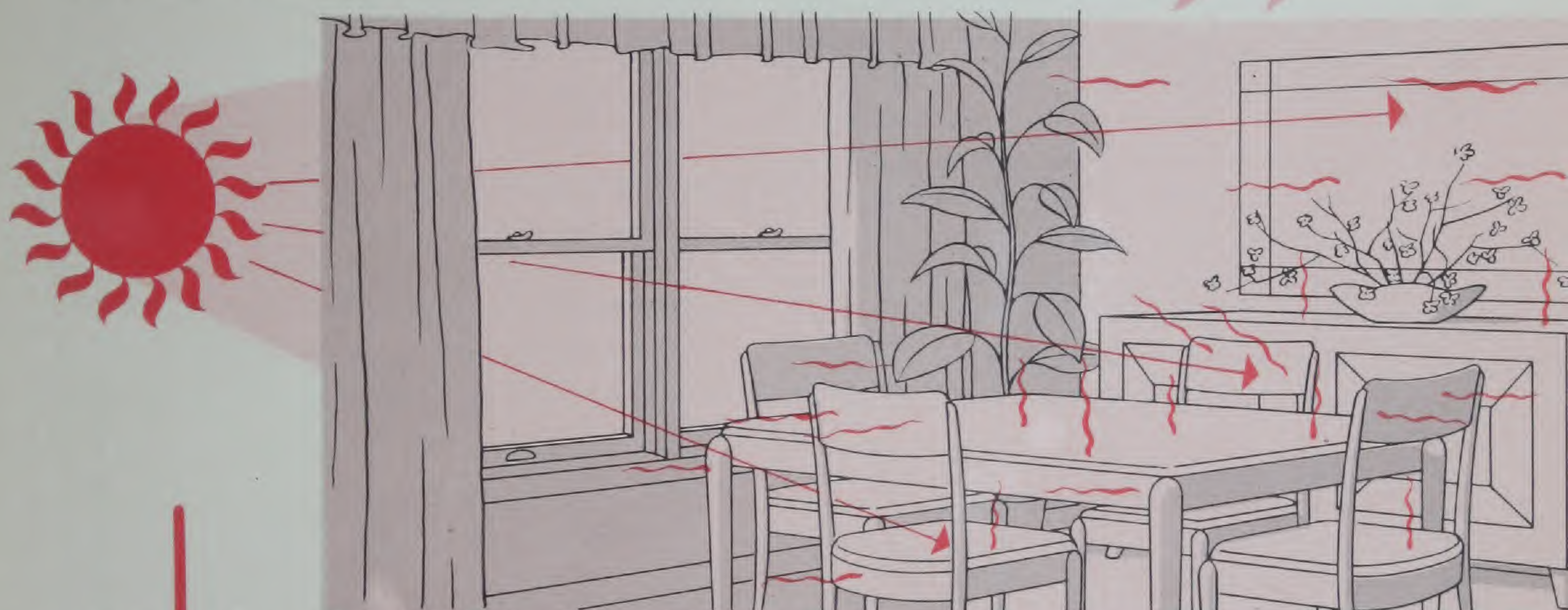
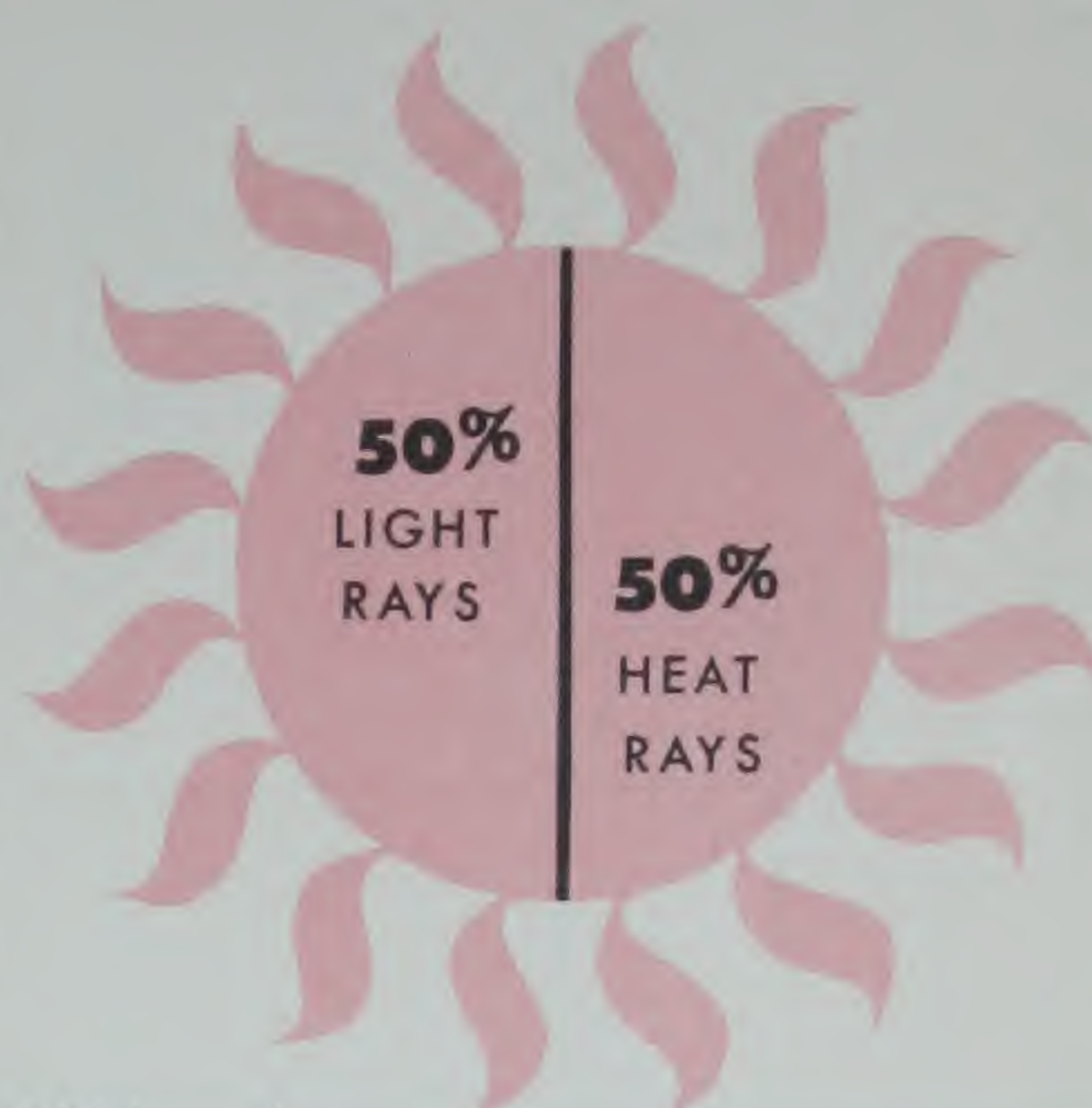


# Q. WHAT CAUSES UNCOMFORTABLY HOT ROOM TEMPERATURES?

## A. SUN HEAT PASSING THROUGH UNPROTECTED WINDOWS.

Solar radiation in the form of invisible infra-red heat rays of long wave length makes up over 50% of the sun's energy reaching the earth. The remainder is visible and invisible ultra-violet light rays of short wave length. These light rays also release considerable quantities of heat as they strike a surface. As illustrated below both these long wave heat rays and part of the short wave length rays readily pass through the ordinary window glass.

When these heat rays enter the room, they are absorbed by everything in it—people, furniture, walls, draperies, etc. Every object continuously reradiates this heat energy in the form of long wave length rays, most of which are retained in the room.



These sun heat rays concentrate their effect starting in early morning. As the hours pass, the room becomes insufferably hot early in the afternoon. Room temperatures may be 10 to 15 degrees above outside temperatures.

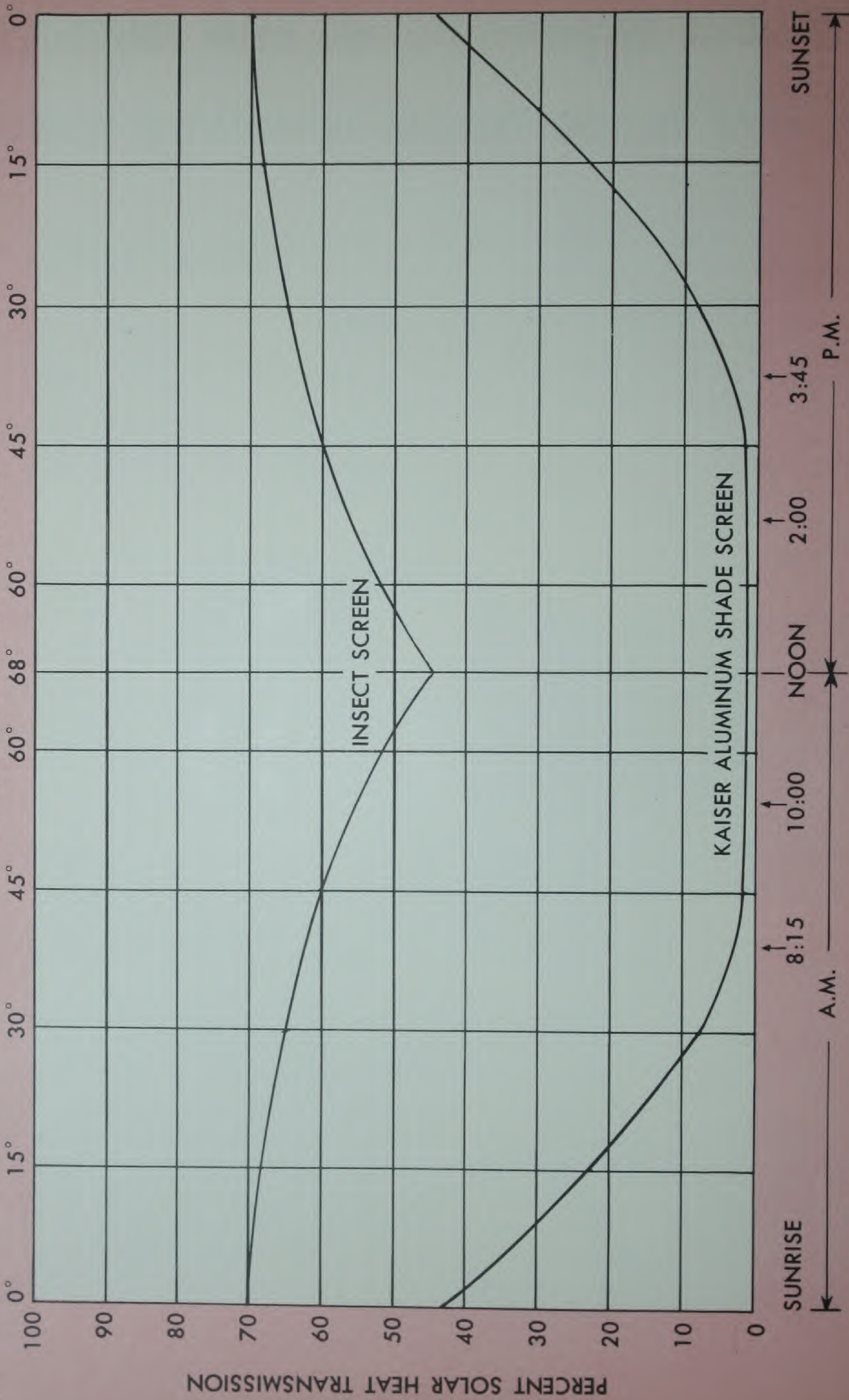
REMEMBER . . . Once the heat's inside the window, it's trapped! It's too late to stop it. All you can do is attempt to remove the warm air with air conditioning equipment—at considerable investment and operating expense.

MOREOVER . . . Other devices do not offer these combined advantages—cooling, shading, and screening—all of which *Kaiser Aluminum Shade Screening* provides as a single product. They may reduce the effect of heat rays, but usually at the sacrifice of one or more of the other necessities: light, visibility and ventilation.



# PERCENT TRANSMISSION OF SOLAR RADIATION

ANGLE OF SUN ABOVE HORIZON



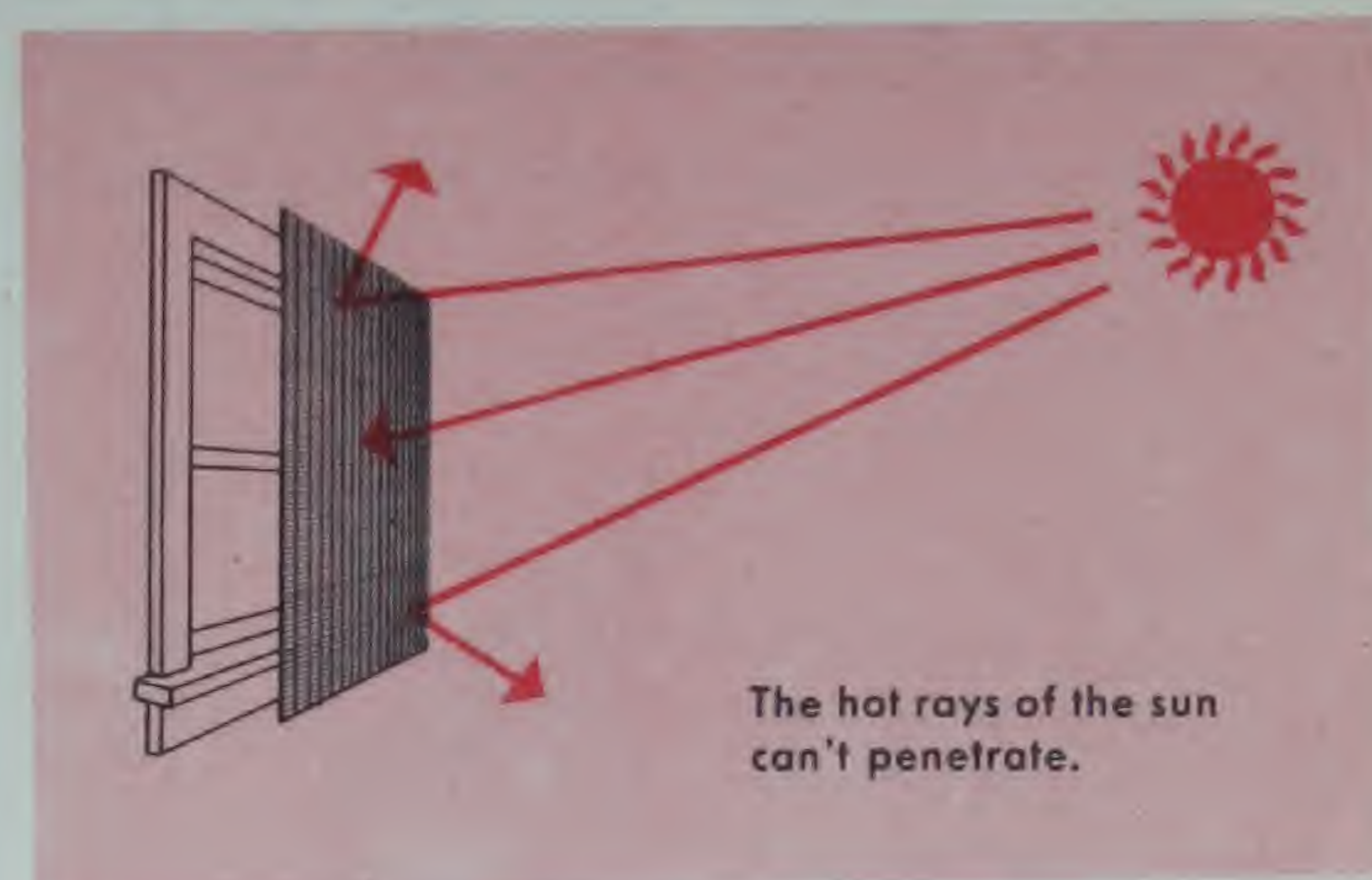
TIMES INDICATED ARE SUNTIME (STANDARD TIME WILL VARY IN TIME ZONES AND DAYLIGHT TIME IS ONE HOUR LATER). THE LATITUDE IS 40° NORTH (PHILADELPHIA, PEORIA, SALT LAKE CITY). THE DATE IS AUGUST 1 (MIDDLE SUMMER).



**Q. HOW DOES KAISER ALUMINUM SCREENING KEEP ROOMS COOLER?**

**A. IT STOPS THE HEAT RAYS BEFORE THEY REACH THE GLASS!**

With its thousands of tiny horizontal louvers tilted at a slight downward angle, *Kaiser Aluminum Shade Screening* stops and blocks the strongest, hottest rays of the sun outside the window—before they pass through the glass.

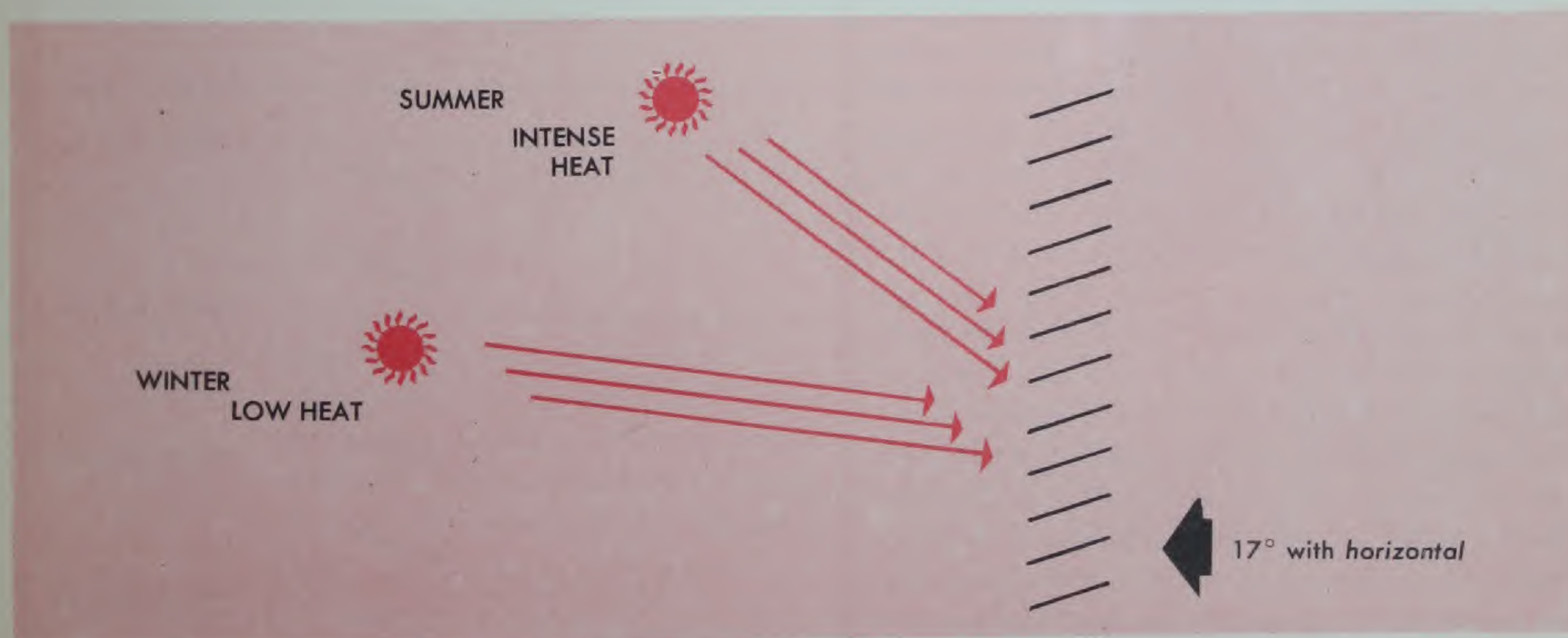


### TESTS PROVE ITS EFFECTIVENESS

Transmission temperature tests\* comparing Shade Screening with ordinary insect screen illustrate the effectiveness of *Kaiser Aluminum Shade Screening* as a barrier to solar radiation.

Moreover, these tests show that *Kaiser Aluminum Shade Screening* reflects more heat than other commonly used materials. Also, the aluminum remains cooler and emits less heat, thus providing even greater comfort efficiency than indicated by the transmission figures alone. What little heat is ab-

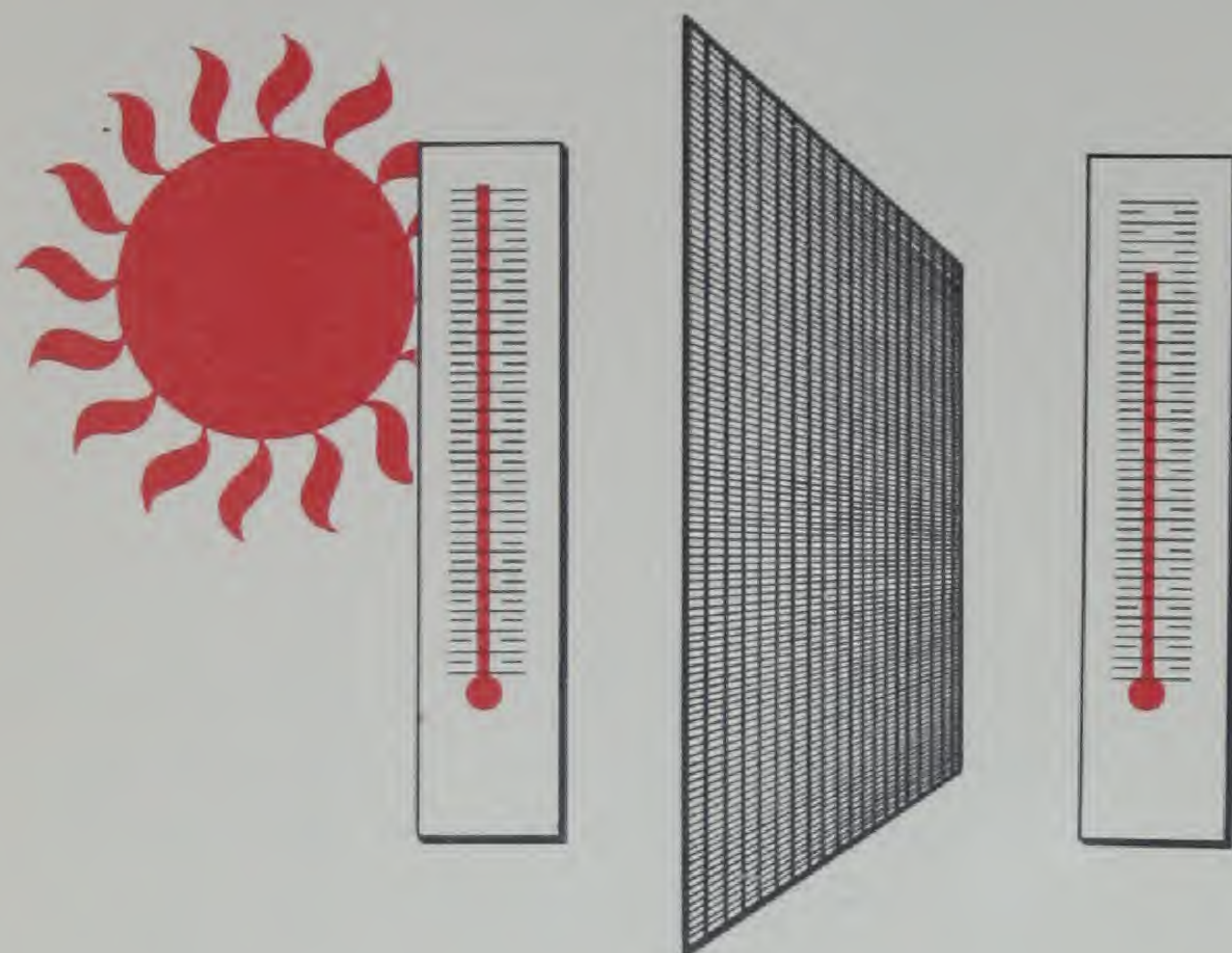
sorbed by *Kaiser Aluminum Shade Screening* is not reradiated toward the window as much as in the other materials because of aluminum's lower radiation property. While *Kaiser Aluminum Shade Screening* is most effective on the hottest summer days when sun angle is highest, its fixed louver angle is designed to allow early morning and late afternoon and most of the winter sun rays to pass through into the room. Thus *Kaiser Aluminum Shade Screening* provides automatic year-round control of sun heat for maximum comfort.



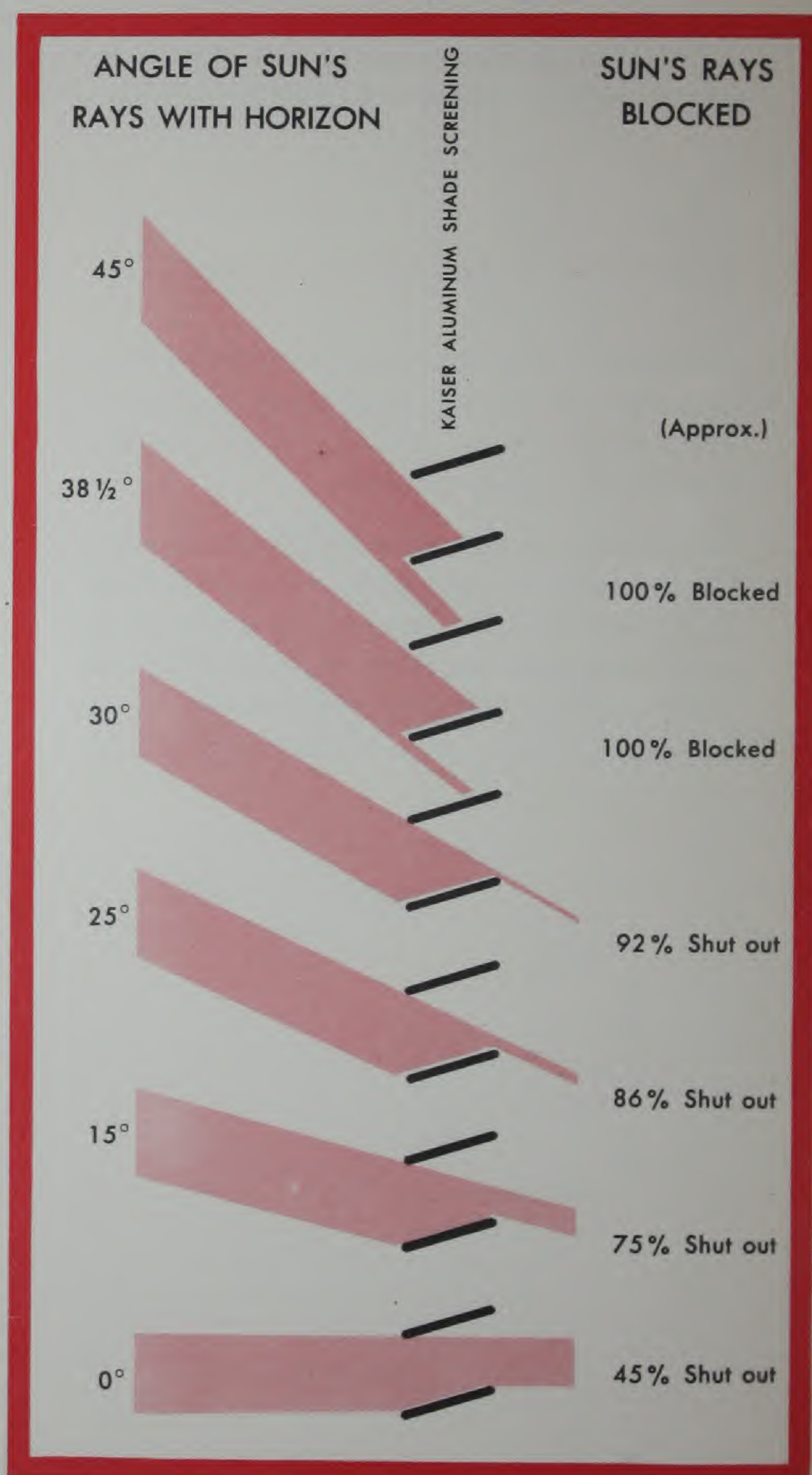
\*(Test conducted under direction of and certified by Engineering Department of leading American University.)



# EFFECTIVENESS OF KAISER ALUMINUM SHADE SCREENING IN BLOCKING SOLAR RADIATION UNDER MAXIMUM HEAT CONDITIONS



Kaiser Aluminum Shade Screening is most effective during the extreme heat period from May 1st to August 30th, and during the hottest hours of these days, 8:00 a.m. to 4:00 p.m. (9:00 a.m. to 5:00 p.m. Daylight Saving Time). At this time of year the sun's maximum solar altitude at 40° latitude varies from about 73° June 22nd to less than 65° in August. Also, Kaiser Aluminum Shade Screening continues to control solar radiation through the window in the early morning hours (from sunrise to 8:00 a.m.) and late afternoon hours (from 4:00 p.m. to sunset), when the intensity of sun heat rays is considerably diminished. The midsummer hours during which the sun is more than 38° apparent altitude (and when Kaiser Aluminum Shade Screening is most effective) are from approximately 8:15 a.m. to 3:45 p.m. (9:15 a.m. to 4:45 p.m. Daylight Saving Time) for the United States in general. There will be some slight variation in the exact time the sun reaches a given altitude due to differences in latitude within the United States and in sun time from standard time.





**CUT COOLING COSTS WITH**

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**KAISER ALUMINUM SHADE SCREENING**

Where summer heat has always been a problem — causing reduced efficiency and great personal discomfort — *Kaiser Aluminum Shade Screening* is the economical solution to cooling.

In designing air conditioning systems, where *Kaiser Aluminum Shade Screening* is planned for windows, the capacity of equipment required may be considerably reduced. (See example shown on page nine.)

In large buildings, special design or zoning necessitated by abnormal heat load on the sunny exposures, can be minimized or eliminated. Space can be utilized with equal comfort in all parts of the room.

Moreover, on existing air conditioned buildings, the addition of *Kaiser Aluminum Shade Screening* to the windows will substantially reduce cost of operating air cooling equipment.

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**REDUCED GLARE,**

**SATISFACTORY VISIBILITY**

The harsh glare of intense sunlight on unprotected windows is materially reduced when *Kaiser Aluminum Shade Screening* is installed. However, ample soft light readily is passed or reflected through the louvers of the screening

at all times of the day. The Screening has an Alodine finish which aids in reducing glare, in addition to protecting the Screening surface. *Kaiser Aluminum Shade Screening* does not cut off your view through the window.





# COMPARISON OF SOLAR RADIATION TRANSMITTED THROUGH SINGLE WINDOW GLASS AND WINDOW COVERED WITH KAISER ALUMINUM SHADE SCREENING

## SOLAR RADIATION DATA

### 40 DEGREE LATITUDE ON JULY 21

ALL FIGURES B.T.U.'s Per Sq. Ft. per Hour

A.M. Sun Time	Orientation (Direction Window Faces)	P.M. Sun Time	Orientation (Direction Window Faces)	Intensity Incident To Vertical Surface (1)	Transmitted Through Single Window Glass Bare (2)	Transmitted Through Window with Kaiser Aluminum Shade Screen (3)	Percent of Heat Blocked by Kaiser Aluminum Shade Screen
6:00	Northeast East Southeast South	6:00	Northwest West Southwest South	72 80 40 x	47 52 24 x		
7:00	Northeast East Southeast South	5:00	Northwest West Southwest South	143 180 112 x	114 147 86 x		
8:00	Northeast East Southeast South	4:00	Northwest West Southwest South	143 211 155 8	120 190 124 1	17 36 17.5 0	89 81 86 100
9:00	Northeast East Southeast South	3:00	Northwest West Southwest South	104 192 168 46	71 170 146 18	6 17 13 1	92 90 91 92
10:00	Northeast East Southeast South	2:00	Northwest West Southwest South	46 143 156 77	15 116 132 45	1 8 10 3	93 93 93 94
11:00	Northeast East Southeast South	1:00	Northwest West Southwest South	x 75 121 95	x 40 93 66	x 2.4 5.6 3	x 94 94 95
12:00	Northeast East Southeast South	12:00	Northwest West Southwest South	x x 73 103	x x 40 74	x x 2.4 3	x x 94 96

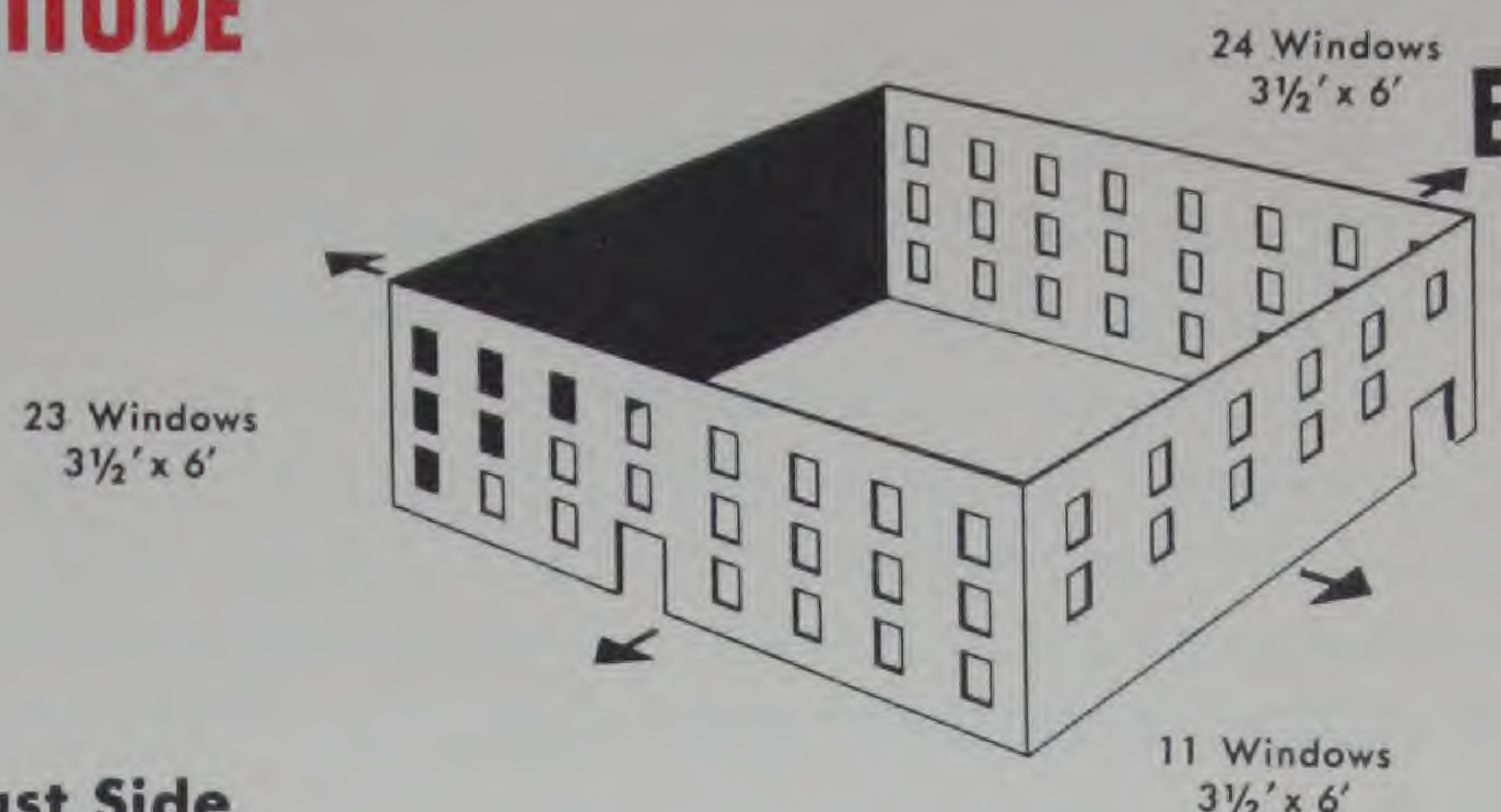
(1) Data from A.S.H.V.E. Guide 1940

(2) Data from William Goodman, Consulting Engineers, Chicago, Illinois.

(3) Shade Screening data calculations based on tests conducted at a major American University.



# TYPICAL CALCULATIONS OF COOLING LOAD REDUCTION DURING PERIODS OF EXTREME MIDSUMMER SOLAR RADIATION AT 40° LATITUDE



## Figuring 24 windows on the East Side

Size 3 1/2' x 6'

Total area 3 1/2' x 6' x 24 = 504 Sq. Ft.

Use 10:00 a.m. peak load

Sun Load Passing Through Unshaded Windows	B.T.U.'s
116 BTU x 504 Sq. Feet.....	58,500
Sun Load Passing Through Aluminum Shade Screen	
8 BTU x 504 Sq. Feet.....	4,040
Quantity of Solar Radiation Blocked by Shade Screen.....	54,460
Converted to Tons of Refrigeration (12,000 BTU's = 1 Ton.)	
Heat Blocked = 4.54 Tons	

## Figuring 23 West Windows 3 1/2' x 6'

Total Area 3 1/2' x 6' x 23 = 483 Sq. Ft. Taking a 3:00 p.m. Peak Load

Sun Load Passing Through Unshaded Windows.....	82,200
Sun Load Passing Through Shade Screen.....	8,220
Reduced by.....	73,980
Heat Blocked = 6.15 Tons	

## Consider the South Exposure with 11 Windows

Size 3 1/2' x 6'

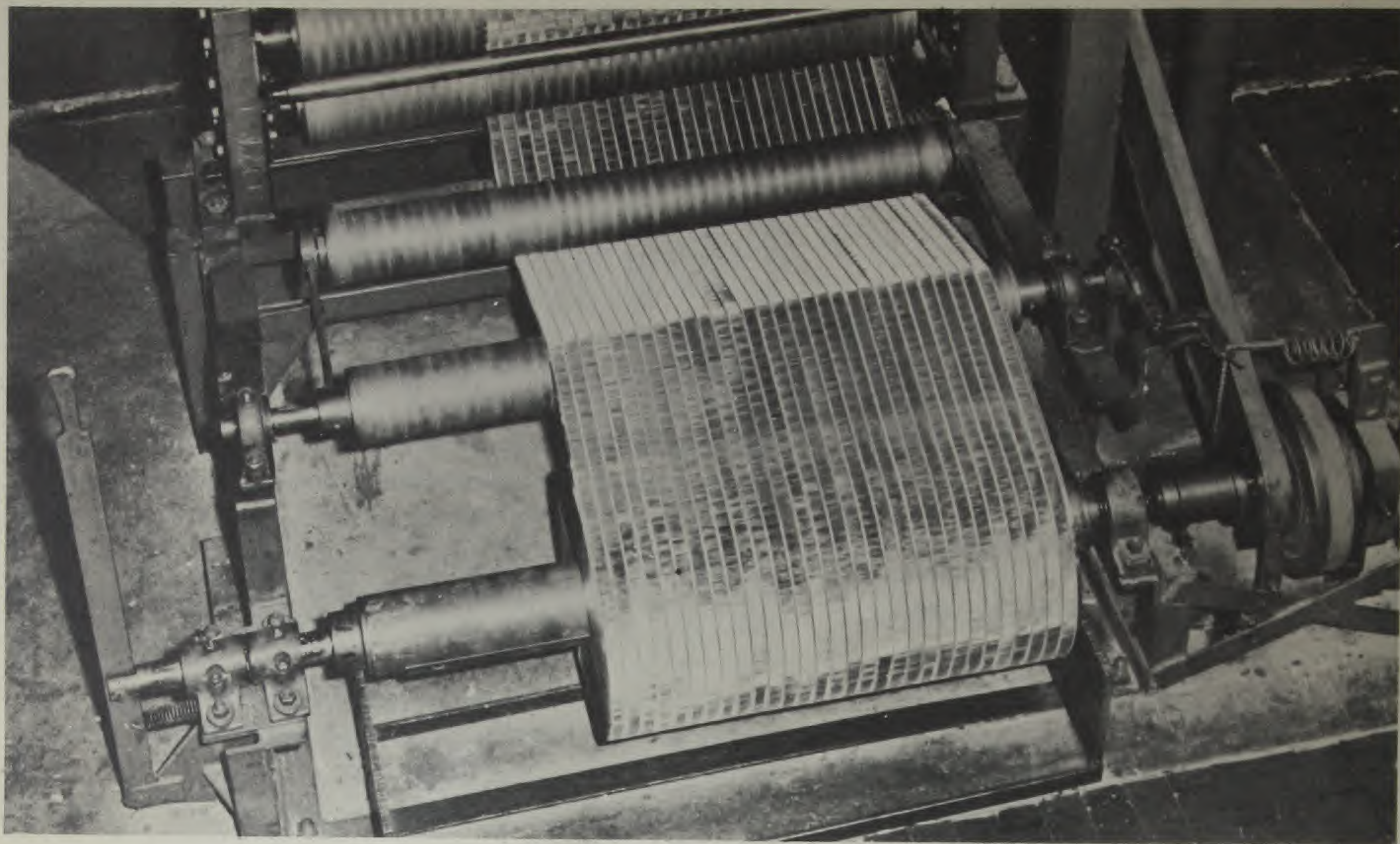
Total Area 3 1/2' x 6' x 11 = 231 Sq. Ft. Taking 12:00 noon Peak Load

Sun Load Through Unshaded Windows.....	17,100
Sun Load Passing Through Shade Screen.....	694
Reduction .....	16,406
Heat Blocked = 1.37 Tons	

## The reduction in Solar Load as a result of the screen installation for each exposure during certain hours is approximately as follows:

East—8:00 a.m. to Noon.....	504 Sq. Ft. x 452.6 BTU = 229,000	B.T.U.'s
West—Noon to 4:00 p.m.....	483 Sq. Ft. x 452.6 BTU = 219,000	
South—9:00 a.m. to 3:00 p.m.....	231 Sq. Ft. x 298 BTU = 68,800	
Approx. Daily Reduction in Tons = 43.2	516,800	





## WHERE IS IT MADE?

*Kaiser Aluminum Shade Screening* is a product of Kaiser Aluminum & Chemical Corporation, one of the country's three major producers of aluminum. Produced at the Trentwood Rolling Mill facilities located near Spokane, Washington, it is sold through nation-wide sales offices of Kaiser Aluminum & Chemical Sales, Inc.

## WHAT IS IT MADE OF?

*Kaiser Aluminum Shade Screening* is manufactured of 52S alloy Kaiser Aluminum, processed to full hard temper. It is formed from .0085" thick coiled sheet and comes in widths from 18" to 42" according to customer's orders.

## HOW IS IT MADE?

*Kaiser Aluminum Shade Screening* is fabricated by feeding long coils of aluminum sheet through a machine containing a drum of knife-edge slitters which cut the sheet into .988" wide slits, spaced 1/18" apart. The sheet continues through the machine to the formers which shape the louvers uniformly to a 17 degree angle. The screen then passes through a continuous spray which applies the alodine coating. Finally, it is wound on a cardboard mandrel in 50 and 100 foot lengths and packed in shipping containers for distribution.

**KAISER ALUMINUM & CHEMICAL SALES, INC. • 1924 BROADWAY, OAKLAND 12, CALIF.**